



National Pollutant Discharge Elimination System

Fact Sheet for

St. Joseph Energy Center

October 2013

Indiana Department of Environmental Management

100 North Senate Avenue
Indianapolis, Indiana 46204

(317) 232-8603

Toll Free (800) 451-6027

www.idem.IN.gov

Permittee:	St. Joseph Energy Center, LLC c/o Development Partners Group 11 Martine Ave. White Plains, NY 10606
Existing Permit Information:	Permit Number: IN0064122 Expiration Date: Five (5) years from issue date
Source Contact:	Willard Ladd, Manager (914)468-2402 Wladd@developmentpartners.com
Source Location:	54801 Walnut Rd. New Carlisle, IN St. Joseph County
Receiving Stream:	Niespodziany Ditch
Proposed Action:	New Permit Date Application Received: April 12, 2013
Source Category	NPDES Major – Industrial
Permit Writer:	Nikki Gardner, Senior Environmental Manager (317)232-8707 ngardner@idem.in.gov

Table of Contents

1.0 Introduction.....	3
2.0 Facility description.....	3
2.1 General.....	3
2.2 Outfall Locations	5
2.3 Wastewater Treatment	6
2.4 Changes in Operation.....	8
2.5 Facility Storm Water.....	8
3.0 Permit History	8
3.1 Compliance history	8
4.0 Receiving Water	8
4.1 Receiving Stream Water Quality	9
5.0 Permit limitations.....	10
5.1 Existing Permit Limits	10
5.2 Technology-Based Effluent Limits	11
5.3 Water Quality-Based Effluent Limits	16
5.4 Whole Effluent Toxicity	17
5.5 Antibacksliding.....	17
5.6 Antidegradation.....	17
5.7 Stormwater	19
5.8 Water Treatment Additives.....	19
6.0 Permit Draft Discussion	20
6.1 Discharge Limitations.....	20
6.2 Monitoring Conditions and Rationale.....	20
6.3 Schedule of Compliance	21
6.4 Special Conditions	21
6.5 Spill Response and Reporting Requirement	27
6.6 Permit Processing/Public Comment	27
7.0 Post Public Notice Addendum	27

1.0 INTRODUCTION

The Indiana Department of Environmental Management (IDEM) received a National Pollutant Discharge Elimination System (NPDES) Permit application from the St. Joseph Energy Center, LLC c/o Development Partners Group on April 12, 2013. A five year permit is proposed in accordance with 327 IAC 5-2-6(a).

The Federal Water Pollution Control Act of 1972 and subsequent amendments require a NPDES permit for the discharge of wastewater to surface waters. Furthermore, Indiana Code (IC) 13-15-1-2 requires a permit to control or limit the discharge of any contaminants into state waters or into a publicly owned treatment works. This proposed permit action by IDEM complies with both federal and state requirements.

In accordance with Title 40 of the Code of Federal Regulations (CFR) Sections 124.8 and 124.56, as well as Indiana Administrative Code (IAC) 327 Article 5, development of a Fact Sheet is required for NPDES permits. This document fulfills the requirements established in those regulations.

This Fact Sheet was prepared in order to document the factors considered in the development of NPDES Permit effluent limitations. The technical basis for the Fact Sheet may consist of evaluations of promulgated effluent guidelines, existing effluent quality, receiving water conditions, and wasteload allocations to meet Indiana Water Quality Standards. Decisions to award variances to Water Quality Standards or promulgated effluent guidelines are justified in the Fact Sheet where necessary.

2.0 FACILITY DESCRIPTION

2.1 General

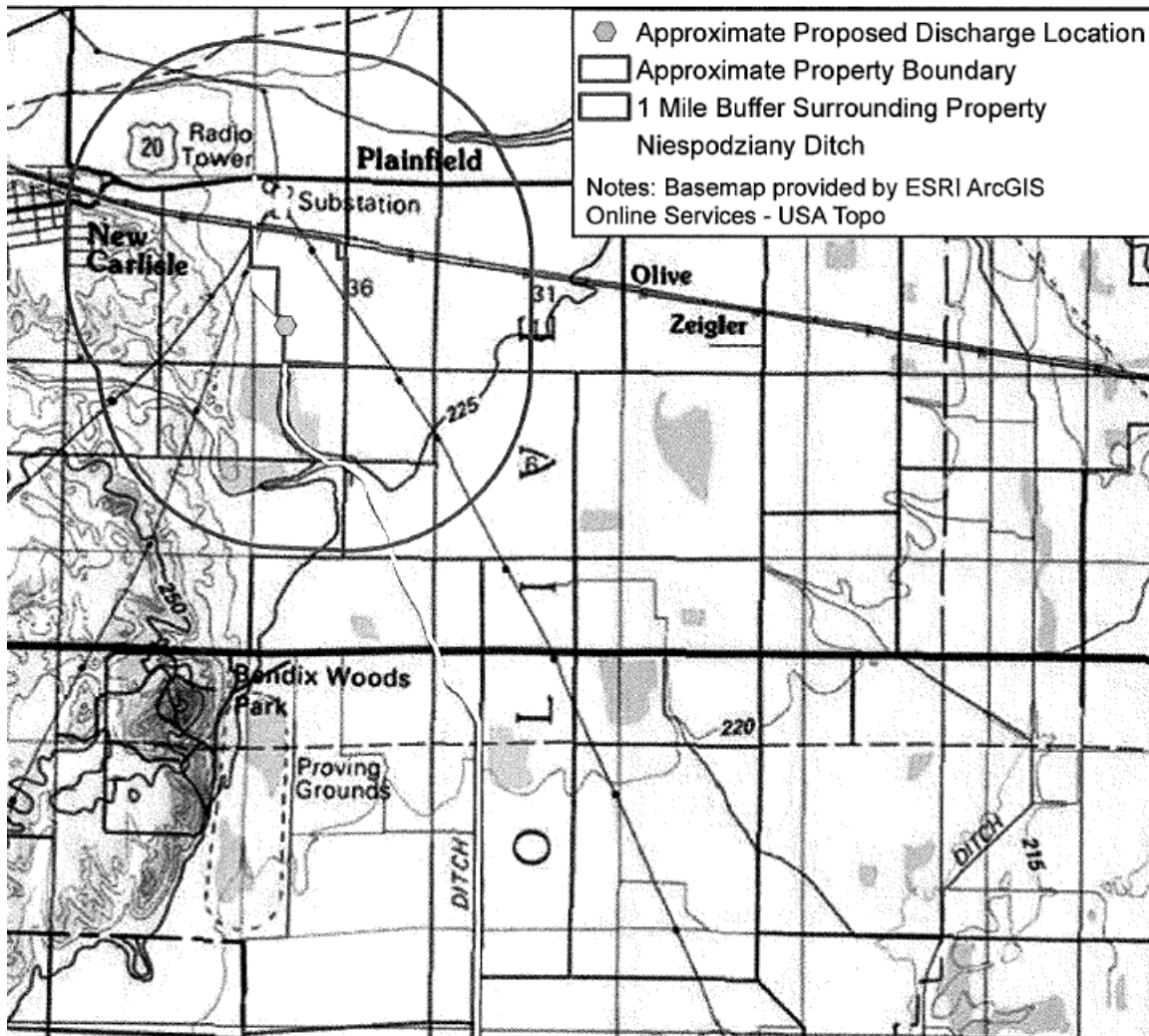
The St. Joseph Energy Center (SJEC) is classified under Standard Industrial Classification (SIC) Code 4911-Electrical Generation and Distribution. The SJEC will be a natural gas-fired combined cycle power generation facility.

St. Joseph Energy Center, LLC (SJEC) is developing the St. Joseph Energy Center (the Project), a 1,345 megawatt (MW) combined cycle gas turbine power plant located on a 165 acre site at the corner of Edison and Walnut Roads within St. Joseph County Economic District 2, in New Carlisle, Indiana. The Project is structured as two separate 670+ MW power blocks and is anticipated to be constructed in two separate phases. The Project's sole fuel source will be natural gas. SJEC is targeting the start of construction on the first phase in late 2013 and commercial operations of the first phase in mid-2016.

As part of the electricity production process utilizing combined cycle technology, the Project will capture exhaust heat from its gas turbines to produce steam, which will drive a steam turbine to

efficiently produce more electricity without utilizing more fuel. The byproduct of this process is heated water, which will be cooled in the Project's cooling towers before being cycled back through the facility. Treated well water will be used as the coolant in these towers. After serving as coolant, the portion of this cooling water that does not evaporate will drain, becoming "blowdown." This blowdown, as well as blowdowns from the Project's specialized water treatment units (collectively, the cooling tower blowdown) will be discharged to the Niespodziany Ditch (the Ditch), which forms the Project's western border. When both phases are operating at full capacity on a hot summer day, the Project is expected to discharge a maximum of up to 4,112 gallons per minute to the Ditch. Discharge for just the first phase during lower temperature will be significantly less than this two phase maximum. Other wastewaters and stormwaters resulting from operation of the Project will be managed via discharge to the City of south Bend POTW or a County-permitted SJEC operated stormwater retention basin located on the Project property, respectively. A map showing the location of the facility has been included as Figure 1.

Figure 1: Facility Location



54801 Walnut Rd.
New Carlisle, IN
St. Joseph County

Latitude: 41° 41' 48.7068" Longitude: -86° 28' 36.7638"

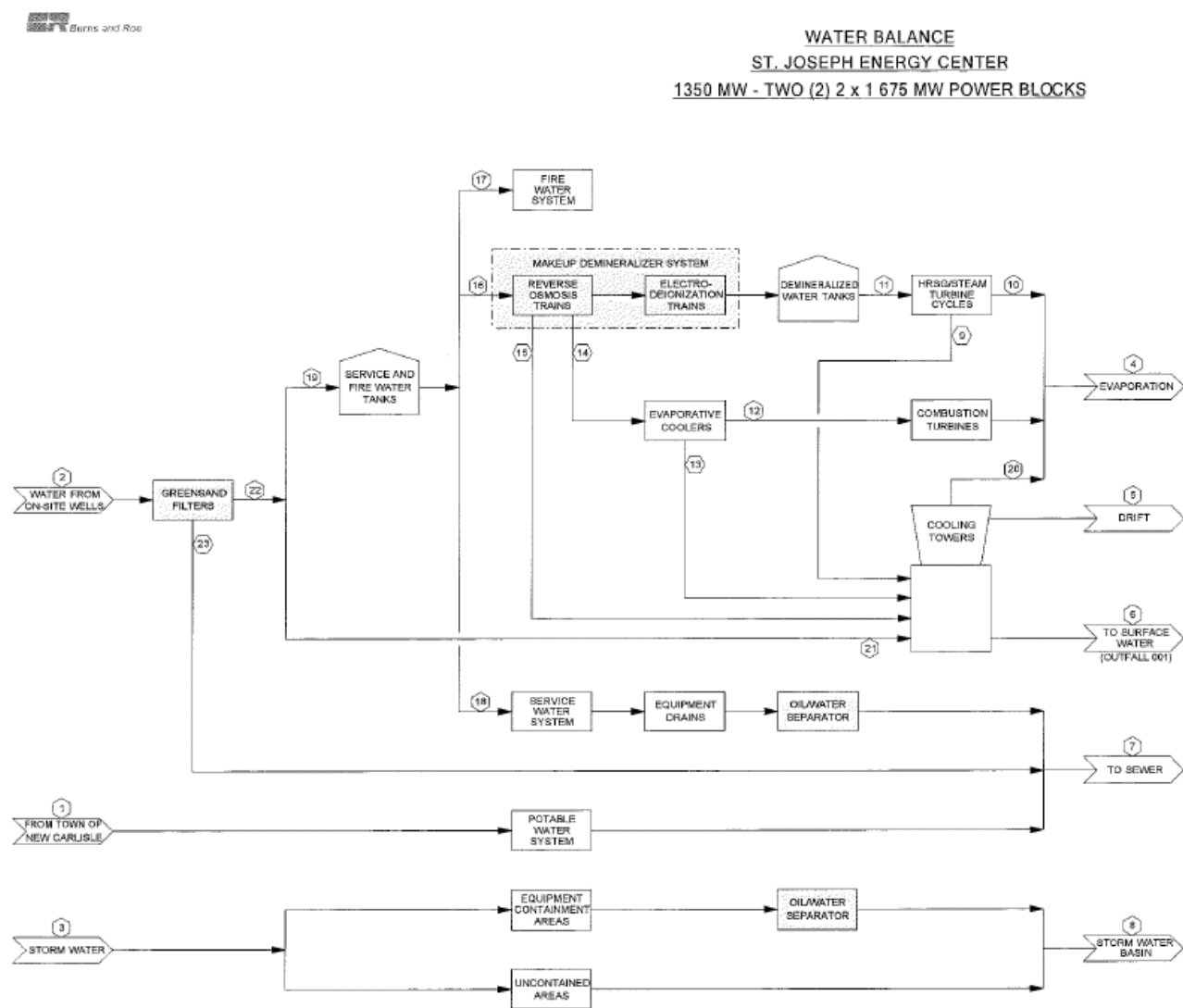
2.2 Outfall Locations

Outfall 001: Latitude: 41° 41' 49.0" Longitude: -86° 28' 59.7"

2.3 Wastewater Treatment

The source water for this facility will be groundwater. The discharge will consist of cooling tower blowdown (RO system, boilers, cooling towers, and dechlorination systems, collectively). Based on the information provided in the 2D application, the cooling tower blowdown is only anticipated to require dechlorination prior to discharge to the Niespodziany Ditch. SJEC is implementing engineering controls and flow management practices to assure that pollutants will not be detectable in the discharge, or will be discharged at levels less than water quality standards. Maximum discharge is expected to be 4,112 gallons per minute (5.9 MGD). A Flow Diagram has been included as Figure 2.

Figure 2: Flow Diagram



CASE	SUMMER
AMBIENT TEMPERATURE, DEG. F	92
RELATIVE HUMIDITY, %	47
FUEL	GAS
DUCT FIRING	ON
EVAPORATIVE COOLER	ON
STEAM TURBINE OPERATION	YES

NUMBER	DESCRIPTION	FLOW RATE
1	TOWN OF NEW CARLISLE WATER SUPPLY	4
2	WATER FROM ON-SITE WELLS	10,517
3	STORMWATER TO EQUIPMENT CONTAINMENT AREAS	0

4	TOTAL EVAPORATION LOSSES	6,337
5	COOLING TOWER DRIFT	1.7
6	DISCHARGE TO SURFACE WATER (COOLING TOWER BLOWDOWN)	4,112
7	DISCHARGE TO SEWER	71
8	DISCHARGE TO STORMWATER BASIN	0

9	HRSG BLOWDOWN	130
10	MISCELLANEOUS LOSSES FROM HRSG/STEAM TURBINE CYCLES	65
11	MAKEUP TO HRSG/STEAM TURBINE CYCLES	195
12	EVAPORATION FROM EVAPORATIVE COOLERS	102
13	EVAPORATIVE COOLER BLOWDOWN	11
14	EVAPORATIVE COOLER MAKEUP	114
15	REVERSE OSMOSIS REJECT	208
16	SERVICE WATER TO MAKEUP DEMINERALIZER SYSTEM	514
17	SUPPLY TO FIRE WATER SYSTEM	0
18	MISCELLANEOUS SERVICE WATER USES	4
19	TOTAL SERVICE AND FIRE WATER USE	518
20	COOLING TOWER EVAPORATION	6,170
21	FILTERED WELL WATER FOR COOLING TOWER MAKEUP	9,937
22	TOTAL FILTERED WELL WATER	10,455
23	GREENSAND FILTER BACKWASH	63

- NOTES: 1. ALL FLOW RATES ARE GALLONS PER MINUTE DURING PEAK OPERATING CONDITIONS.
2. THE ABOVE ASSUMES NO STORMWATER FLOW.
3. THE ABOVE IS BASED ON COOLING TOWER OPERATION AT (2.5) CYCLES OF CONCENTRATION.
4. ALL FLOW RATES ARE FOR TWO (2) 675 MW POWER BLOCKS.

Outfall 001 will have a maximum discharge of approximately 4,112 gallons/minute (5.9 MGD). The permittee shall have the wastewater treatment facilities under the responsible charge of an operator certified by the Commissioner in a classification corresponding to the classification of the wastewater treatment plant as required by IC 13-18-11-11 and 327 IAC 5-22-5. In order to operate a wastewater treatment plant the operator shall have qualifications as established in 327 IAC 5-22-7. Based upon the information provided, IDEM has not given the permittee an industrial wastewater treatment plant classification. This facility has no treatment other than dechlorination; per 327 IAC 5-22-5 dechlorination is not classified.

2.4 Changes in Operation

This is a new NPDES permit.

2.5 Facility Storm Water

The permittee has not requested and is not authorized to discharge storm water. Storm water will be managed via an on-site retention basin that is permitted by St. Joseph County and will be operated by the SJEC. The basin will retain up to a 100-year 24-hour storm event. Storm water will not be discharged from the basin; only evaporation and percolation will occur.

3.0 PERMIT HISTORY

3.1 Compliance history

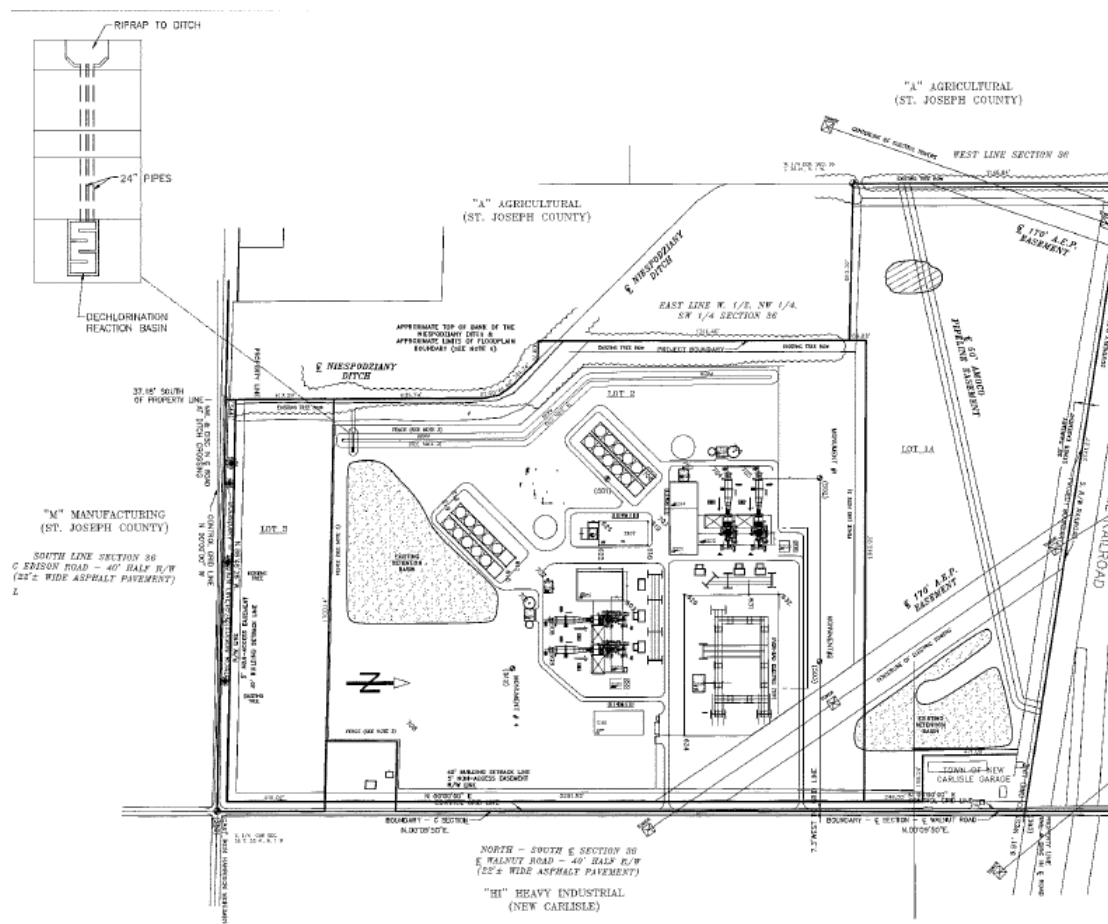
This is a new NPDES permit.

4.0 RECEIVING WATER

The receiving stream for Outfall 001 is the Niespodziany Ditch, a tributary to the Kankakee River. The $Q_{7,10}$ low flow value of the Niespodziany Ditch is 0.0 cfs and shall be capable of supporting a well balanced warm water aquatic community and full body contact recreation in accordance with 327 IAC 2-1-3.

In accordance with 327 IAC 2-1.3, language in this renewed permit specifically prohibits the permittee from undertaking deliberate actions that would result in new or increased discharges of BCC's or new or increased permit limits for non-BCC's, or from allowing a new or increased discharge of a BCC from an existing or proposed industrial user, without first proving that the new or increased discharge would not result in a significant lowering of water quality, or by submission and approval of an antidegradation demonstration to the IDEM. A Site Map has been included as Figure 3.

Figure 3: Site Map



4.1 Receiving Stream Water Quality

Section 303(d) of the Clean Water Act requires states to identify waters, through their Section 305(b) water quality assessments, that do not or are not expected to meet applicable water quality standards with federal technology based standards alone. States are also required to develop a priority ranking for these waters taking into account the severity of the pollution and the designated uses of the waters. Once this listing and ranking of impaired waters is completed, the states are required to develop [Total Maximum Daily Loads \(TMDLs\)](#) for these waters in order to achieve compliance with the water quality standards.

Indiana's 2012 303(d) List of Impaired Waters was developed in accordance with Indiana's Water Quality Assessment and 303(d) Listing Methodology for Waterbody Impairments and Total Maximum Daily Load Development for the 2012 Cycle. The Niespodziany Ditch (Assessment Unit INK0124_03) is on the 2012 303(d) list for Impaired Biotic Communities. A TMDL for E. coli for the Assessment Unit INK0124_03 in 12 Digit HUC 071200010204 has been done for the Kankakee River as part of the Kankakee River/Iroquois River TMDL Study, and approved by U.S. EPA on 9/29/2009.

5.0 PERMIT LIMITATIONS

Two categories of effluent limitations exist for NPDES permits: Technology-Based Effluent Limits (TBELs) and; Water Quality-Based Effluent Limits (WQBELs).

TBELs are developed by applying the National Effluent Limitation Guidelines (ELGs) established by USEPA for specific industrial categories TBELs are the primary mechanism of control and enforcement of water pollution under the Clean Water Act (CWA). Technology based treatment requirements under section 301(b) of the CWA represent the minimum level of control/treatment using available technology that must be imposed in a section 402 permit [40 CFR 125.3(a)].

In the absence of ELGs, effluent limits can also be based upon Best Professional Judgment (BPJ). Accordingly, every individual member of a discharge class or category is required to operate their water pollution control technologies according to industry-wide standards and accepted engineering practices. This means that TBELs based upon a BPJ determination are applied at end-of-pipe and mixing zones are not allowed [40 CFR 125.3(a)]. Similarly, since the statutory deadlines best practicable technology (BPT), best available technology economically achievable (BAT) and best conventional control technology (BCT) have all passed; compliance schedules for these TBELs are also not allowed.

WQBELs are designed to be protective of the beneficial uses of the receiving water and are independent of the available treatment technology. The WQBELs for this facility are based on water quality criteria in 327 IAC 2-1-6 or under the procedures described in 327 IAC 2-1-8.2 through 327 IAC 2-1-8.7 and implementation procedures in 327 IAC 5. Limitations and/or monitoring are required for parameters identified by applications of the reasonable potential to exceed WQBEL under 327 IAC 5-2-11.1 (h)(1).

According to 40 CFR 122.44 and 327 IAC 5, NPDES permit limits are based on either TBELs, where applicable, BPJ, or WQBELs, whichever is most stringent. The decision to limit or monitor the parameters contained in this permit is based on information contained in the permittee's NPDES application. In addition, when performing a permit renewal, existing permit limits must be considered. These may be TBELs, WQBELs, or limits based on BPJ. When renewing a permit, the antibacksliding provisions identified in 327 IAC 5-2-10(11) are taken into consideration.

5.1 Existing Permit Limits – N/A

5.2 Technology-Based Effluent Limits

EPA Effluent Guidelines – New Source Performance Standards (NSPS) found in 40 CFR 423.15. The U.S. EPA has established technology-based effluent guidelines for steam electric generating facilities. The applicable effluent guidelines are as follows:

Requirements applicable to all wastewater streams:

1. pH Control - 40 CFR 423.15(a); The pH of all discharges, except once through cooling water, shall be within the range of 6.0-9.0 s.u.
2. Polychlorinated biphenyl (PCB) - 40 CFR 423.15(b); There shall be no discharge of polychlorinated biphenyl compounds such as those commonly used for transformer fluid.

Regulated wastewater streams and their applicable requirements

There are six (6) separate wastewater streams that are regulated by 40 CFR Part 423, they are:

- 1) Once through non-contact cooling water for a plant with a total rated electric generating capacity of 25 or more megawatts – 40 CFR 423.15(h)(1) and (2)
- 2) Cooling tower blowdown - 40 CFR 423.15(j)(1), (2), and (3)
- 3) Low volume wastewater - 40 CFR 423.15(c)
- 4) Bottom ash transport wastewater - 40 CFR 423.15(f)
- 5) Chemical metal cleaning wastewater - 40 CFR 423.15(d).
- 6) Coal Pile Runoff - 40 CFR 423.15(k)
- 7) Fly ash transport wastewater – Prohibited by 40 CFR 423.15(g).

The table below identifies the stringent guidelines for each wastewater sources.

40 CFR 423.15 – New Source Performance Standards (NSPS)

Wastewater Stream***	pH	Res. Chlorine	TSS		O & G		T. Copper		T. Iron		T. Zinc		T. Chromium	
			Daily Max	Mo. Avg	Daily Max	Mo. Avg	Daily Max	Mo. Avg	Daily Max	Mo. Avg	Daily Max	Mo. Avg	Daily Max	Mo. Avg
Once through non-contact cooling water N/A	n/a	0.2 mg/l*	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Cooling tower blowdown Outfall 001	≥ 6.0 s.u. and ≤ 9.0 s.u	0.2 mg/l*	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	1.0 mg/l	1.0 mg/l	0.2 mg/l	0.2 mg/l
Low volume wastewater**** Outfall 001	≥ 6.0 s.u. and ≤ 9.0 s.u	n/a	100.0 mg/l	30.0 mg/l	20.0 mg/l	15.0 mg/l	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Bottom ash transport wastewater N/A	≥ 6.0 s.u. and ≤ 9.0 s.u	n/a	100.0 mg/l	30.0 mg/l	20.0 mg/l	15.0 mg/l	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

Chemical metal cleaning wastewater N/A	≥ 6.0 s.u. and ≤ 9.0 s.u	n/a	100.0 mg/l	30.0 mg/l	20.0 mg/l	15.0 mg/l	1.0 mg/l	1.0 mg/l	1.0 mg/l	1.0 mg/l	n/a	n/a	n/a	n/a
Coal pile runoff N/A	≥ 6.0 s.u. and ≤ 9.0 s.u	n/a	50.0 mg/l**	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

* The discharge of chlorine is limited to a maximum two hours per day for each electrical generating unit.

** This value is an instantaneous limitation (at any time), not a daily maximum.

***When wastewater streams are combined for discharge and/or treatment 40 CFR 423 requires that the quantity of each pollutant or pollutant property controlled attributable to each controlled waste source shall not exceed the specified limitations for that waste source.

****In accordance with 40 CFR 423.11(b), the term low volume waste sources means, taken collectively as if from one source, wastewater from all sources except those for which specific limitations are otherwise established in this part. Low volume wastes sources include, but are not limited to: wastewaters from wet scrubber air pollution control systems, ion exchange water treatment system, water treatment evaporator blow down, laboratory and sampling streams, boiler blow down, floor drains, cooling tower basin cleaning wastes, and recirculating house service water systems. Sanitary and air conditioning wastes are not included.

Total Suspended Solids (TSS) and Oil & Grease (O & G)

TSS and O & G are identified as parameters subject to the federally promulgated effluent limitation guidelines of 40 CFR 423 for this category of discharger. The TSS and O & G effluent limitations are established in accordance with 40 CFR 423.15(c) and are applied due to the presence of boiler blow down, which is a low volume waste by definition. In accordance with 423.11(b) low volume wastes sources include, but are not limited to: wastewaters from wet scrubber air pollution control systems, ion exchange water treatment system, water treatment evaporator blow down, laboratory and sampling streams, boiler blow down, floor drains, cooling tower basin cleaning wastes, and recirculating house service water systems. The TSS effluent limitations are 100 mg/l (daily maximum) and 30 mg/l (monthly average). The O&G effluent limitations are 20 mg/l (daily maximum) and 15 mg/l (monthly average).

Pollutant or pollutant property	NSPS effluent limitations	
	Maximum for any 1 day (mg/l)	Average of daily values for 30 consecutive days shall not exceed (mg/l)
TSS	100.0	30.0
Oil and grease	20.0	15.0

Free Available Chlorine/Total Residual Chlorine (TRC), Total Chromium, Total Zinc, and 126 Priority Pollutants

In accordance with 40 CFR 423.15(j)(1) The quantity of pollutants discharged in cooling tower blowdown shall not exceed the quantity determined by multiplying the flow of cooling tower blowdown times the concentration listed below:

Pollutant or pollutant property	NSPS effluent limitations	
	Maximum concentration (mg/l)	Average concentration (mg/l)
Free available chlorine	0.5	0.2
Pollutant or pollutant property	Maximum for any 1 day (mg/l)	Average of daily values for 30 consecutive days shall not exceed –(mg/l)
The 126 priority pollutants (Appendix A) contained in chemicals added for cooling tower maintenance, except:	(¹)	(¹)
Chromium, total	0.2	0.2
Zinc, total	1.0	1.0

¹ No detectable amount.

Neither free available chlorine nor total residual chlorine may be discharged from any unit for more than two hours in any one day and not more than one unit in any plant may discharge free available or total residual chlorine at any one time unless the utility can demonstrate to the Regional Administrator or State, if the State has NPDES permit issuing authority, that the units in a particular location cannot operate at or below this level of chlorination.

At the permitting authority's discretion, instead of the monitoring in 40 CFR 122.11(b), compliance with the limitations for the 126 priority pollutants in paragraph (j)(1) of this section may be determined by engineering calculations which demonstrate that the regulated pollutants are not detectable in the final discharge by the analytical methods in 40 CFR part 136.

5.3 Water Quality-Based Effluent Limits

The water quality-based effluent limitations for this facility are based on water quality criteria in 327 IAC 2-1.5-8 or under the procedures described in 327 IAC 2-1.5-11 through 327 IAC 2-1.5-16 and implementation procedures in 327 IAC 5.

Narrative Water Quality Based Limits

The narrative water quality contained under 327 IAC 2-1.5-8(b)(1) (A)-(E) have been included in this permit to ensure that the narrative water quality criteria are met.

Numeric Water Quality Based Limits

The numeric water quality criteria and values contained in this permit have been calculated using the tables of water quality criteria under 327 IAC 2-1.5-8(b) & (c).

Flow

The permittee's flow is to be monitored in accordance with 327 IAC 5-2-13(a)2.

pH

Limitations for pH in the proposed permit are taken from 327 IAC 2-1.5-8(c)(2).

Total Residual Chlorine (TRC), Chromium (Total), and Zinc

IDEM developed a Wasteload Allocation Report (WLA001986) for the St. Joseph Energy Center New Carlisle Plant on June 21, 2013. WLA001986 established the following water quality based effluent limitations (WQBEL):

	<u>Monthly Average</u>	<u>Daily Maximum</u>
TRC	0.01 mg/l	0.02 mg/l
Chromium, Total	0.49 mg/l	0.99 mg/l
Zinc	0.26 mg/l	0.52 mg/l

Mercury

New mercury analytical and sampling methodology provide for limits of detection and quantification at levels below the water quality criterion, and the IDEM is requiring major NPDES dischargers to utilize these methodologies to determine if their discharges have reasonable potential to exceed the water quality criterion.

The NPDES permit requires that mercury sampling be conducted bi-monthly in the months of February, April, June, August, October, and December of each year for the term of the permit. This shall be achieved by either installing appropriate analytical facilities or by obtaining the services of a commercial laboratory.

The permittee may submit a request for review of monitoring data after the first year of sampling has been completed using EPA Test Method 1631, Method E. The permit may be modified to reduce monitoring requirements for mercury if it is found that it will not be discharged at a level that will cause, have the reasonable potential to cause, or contribute to an excursion (RPE) above a water quality criteria. Conversely, effluent limits and monitoring requirements shall be added to the permit if RPE exists. If RPE does not exist, any reduction of monitoring will remain in effect only during the term of the renewal of the permit and as long as there are no modifications to the wastewater treatment facilities and/or significant changes to the influent flow characteristics of the wastewater treatment facility.

Temperature

See Section 6.4 of this document for a detailed discussion on Thermal Effluent Limitations and Alternate Thermal Effluent Limitations Requirements.

5.4 Whole Effluent Toxicity

The permit does not contain a requirement to conduct WETT testing.

5.5 Antibacksliding

As this permit is for a proposed new facility, backsliding regulations do not apply.

5.6 Antidegradation

327 IAC 2-1.3 outlines the state's Antidegradation Standards and Implementation Procedures. The Tier 1 antidegradation standard found in 327 IAC 2-1.3-3(a) applies to all surface waters of the state regardless of their existing water quality. Based on this standard, for all surface waters of the state, existing uses and the level of water quality necessary to protect existing uses shall be maintained and protected. IDEM implements the Tier 1 antidegradation standard by requiring NPDES permits to contain effluent limits and best management practices for regulated pollutants that ensure the narrative and numeric water quality criteria applicable to the designated use are achieved in the water and any designated use of the downstream water is maintained and protected. Effluent limits for the following regulated pollutants are being included in this NPDES permit to satisfy the Tier 1 antidegradation standard: TSS and O & G

The Tier 2 antidegradation standard found in 327 IAC 2-1.3-3(b) applies to surface waters of the state where the existing quality for a parameter is better than the water quality criterion for that parameter established in 327 IAC 2-1.5. These surface waters are considered high quality for the parameter and this high quality shall be maintained and protected unless the commissioner finds that allowing a significant lowering of water quality is necessary and accommodates important social or economic development in the area in which the waters are located. IDEM implements the Tier 2 antidegradation standard for regulated pollutants with numeric water quality criteria quality adopted in or developed pursuant to 327 IAC 2-1.5 and utilizes the antidegradation implementation procedures in 327 IAC 2-1.3-5 and 2-1.3-6.

According to 327 IAC 2-1.3-1(b), the antidegradation implementation procedures in 327 IAC 2-1.3-5 and 2-1.3-6 apply to a proposed new or increased loading of a regulated pollutant to surface waters of the state from a deliberate activity subject to the Clean Water Act, including a change in process or operation that will result in a significant lowering of water quality.

The NPDES permit establishes a new or increased loading of TRC, Total Chromium, and Zinc that will result in a significant lowering of water quality in accordance with 327 IAC 2-1.3-2(50), therefore, the Antidegradation Implementation Procedures in 327 IAC 2-1.3-5 and 2-1.3-6 apply to the new loadings of TRC, Total Chromium, and Zinc in the permitted discharge. The finding of significant lowering was determined by conducting a wasteload allocation (WLA) analysis. The WLA was completed by Office of Water Quality (OWQ) Permits Branch staff on June 21, 2013.

In accordance with 327 IAC 2-1.3-5, the St. Joseph Energy Center submitted an antidegradation demonstration on April 12, 2013 for a new discharge of wastewater from a proposed combined-cycle gas turbine power plant. IDEM reviewed the antidegradation demonstration and found it to be complete on April 19, 2013. The receipt of a complete antidegradation demonstration was public noticed on April 26, 2013 in the South Bend Tribune for 30 days to solicit comments from the public. The public comment period ended on May 27, 2013.

The commissioner of IDEM has made a tentative determination on the antidegradation demonstration to approve the proposed new discharge of wastewater from the proposed combined-cycle gas turbine power plant into the Niespodziany Ditch. The following is a summary of the factors considered in making the tentative decision.

- TRC: SJEC is implementing engineering controls and flow management practices to assure that TRC will not be detectable in the discharge. The effluent will be dechlorinated prior to discharge.
- Chromium (Total) and Zinc: SJEC operations will not add incremental chromium or zinc to the water cycled through the facility, therefore the projected effluent quality for chromium and zinc is based on the levels measured in the groundwater that will supply the facility. However, the cycling of cooling water through the cooling towers will increase the concentration of chromium and zinc in the effluent relative to the groundwater supplying the facility. In order to manage these concentrations the SJEC has engineered the Project to minimize the number of cooling tower cycles.
- SJEC considered the availability, reliability, cost effectiveness, and technical feasibility of (1) No degradation, (2) Minimal degradation, and (3) Degradation mitigation techniques or alternatives. For this type of discharge, the options for “no degradation” and “minimal degradation” are the same; that there must be no discharge. Degradation mitigation techniques would consist of zero liquid discharge, discharge to the South Bend POTW, or discharge to the Kankakee River. These options were all deemed infeasible for economic and multimedia impact; economic and operational uncertainty; and economics and timing, respectively.

- SJEC conducted an alternatives analysis, including a zero discharge scenario and a reroute to the Kankakee River. However, neither alternative appears to be feasible. The City of South Bend POTW indicated it would face significant challenges accepting the projected flows, and could not guarantee continued acceptance for the life of the facility. Rerouting the discharge 17 miles to the Kankakee River is unlikely to be feasible due to multiple regulatory jurisdictions, land acquisition, zoning, and permitting issues.
- SJEC has concluded that the social and economic benefits of the plant include job creation, economic stimulus, improved income, and reduced unemployment and poverty. SJEC believes that the Project has the potential to improve water quality in the Project area, and in doing so result in improved value for angling and other outdoor recreational activities. The clean and in-state source of power will generate improved quality of life measures, and reduce the need to import power from other states. The steady source of power will meet the growing need for electricity and strengthen economic competitiveness in St. Joseph County and the neighboring areas. The Project will expand municipal fiscal resources without putting additional stress on social services.
- On April 26, 2013, the St. Joseph County Drainage Board approved a discharge rate of 9 cfs (6 MGD) to the Niespodziany Ditch based on the following conditions: (1) Development Partners supplies the funding necessary to replace the two private field culverts as identified and based on the recommendations cited in the hydraulic analysis report prepared by DLZ Indiana LLC and (2) Development Partners provides the funding necessary to clean or dredge the Niespodziany Ditch from S.R. 2 to the north property line of the proposed Energy Plant site (Norfolk Southern Railroad).
- SJEC is having ongoing discussions with the County regarding water withdrawal. Given the prolific nature of the aquifer it is believed that the Project's potential maximum withdrawal will not affect nearby wells.

The permittee is prohibited from undertaking any deliberate action that would result in a new or increased discharge of a bioaccumulative chemical of concern (BCC) or a new or increased permit limit for a pollutant or pollutant parameter that is not a BCC unless information is submitted to the commissioner demonstrating that the proposed new or increased discharge will not cause a significant lowering of water quality, or an antidegradation demonstration submitted and approved in accordance 327 IAC 2-1.3.

5.7 Stormwater

Please refer to Section 2.5 of this Fact Sheet.

5.8 Water Treatment Additives

In the event that changes are to be made in the use of water treatment additives that could significantly change the nature of, or increase the discharge concentration of the additive contributing to Outfall 001, the permittee shall notify the Indiana Department of Environmental Management as required in Part II.C.1 of this permit. The use of any new or changed water

treatment additives or dosage rates shall not cause the discharge from any permitted outfall to exhibit chronic or acute toxicity. Acute and chronic aquatic toxicity information must be provided with any notification regarding any new or changed water treatment additives or dosage rates.

6.0 PERMIT DRAFT DISCUSSION

6.1 Discharge Limitations

Outfall 001

Parameter	Monthly Average	Daily Maximum	Units	Monthly Average	Daily Maximum	Units	Source of Applicable Limits
Flow	Report	Report	MGD	----	----	----	327 IAC 5
TSS	----	----	----	30	100	mg/l	TBEL
O & G	----	----	----	15	20	mg/l	TBEL
TRC	----	----	----	0.01	0.02	mg/l	WQBEL
Temperature	----	----	----	Report	Report	°F	316(a)
Zinc	----	----	----	0.26	0.52	mg/l	WQBEL
Chromium	----	----	----	0.2	0.2	mg/l	TBEL
126 Priority Pollutants	----	----	----	(1)	(1)	(1)	TBEL
Mercury	----	----	----	----	Report	ng/l	WQBEL

Parameter	Daily Minimum	Daily Maximum	Units	Source of Applicable Limits
pH	6.0	9.0	Std Units	WQBEL

⁽¹⁾ No detectable amount. Instead of the monitoring in 40 CFR 122.11(b), compliance with the limitations for the 126 priority pollutants may be determined by engineering calculations which demonstrate that the regulated pollutants are not detectable in the final discharge by the analytical methods in 40 CFR part 136.

6.2 Monitoring Conditions and Rationale

Analytical and sampling methods used shall conform to the current version of 40 CFR 136 as referenced in 327 IAC 5-2-13(d)(1). The monitoring conditions proposed are comparable to those in permits regulating similar types of discharges.

Outfall 001

Parameter	Minimum Frequency	Type of Sample
Flow	Daily	24 Hr. Total
TSS	1 X Week	Grab
O & G	1 X Week	Grab

TRC	1 X Week	Grab
Temperature	Daily	Grab
Zinc	2 X Month	24 Hr. Composite
Chromium	2 X Month	24 Hr. Composite
126 Priority Pollutants	⁽¹⁾	Report
pH	Daily	Grab

⁽¹⁾ At least once per permit cycle

6.3 Schedule of Compliance

This is a new permit, therefore the discharge isn't eligible for a schedule of compliance.

6.4 Special Conditions

6.4.1 CWA Section 316(a) Alternative Thermal Effluent Limitations (ATEL)

Applicability, Purpose and Scope

The regulations applicable to dischargers requesting alternative thermal effluent limitations (ATEL) as allowed by section 316(a) of the Clean Water Act (CWA) are found in 40 CFR 125 subpart H and 327 IAC 5-7. 40 CFR 125 subpart H and 327 IAC 5-7 describe the factors, criteria and standards for the establishment of alternative thermal effluent limitations under section 316(a) of the Act in permits issued under section 402(a) of the Act.

With respect to any point source otherwise subject to the provisions of section 301 or section 306 of this Act, whenever the owner or operator of any such source, after opportunity for public hearing, can demonstrate to the satisfaction of the Administrator (or, if appropriate, the State) that any effluent limitation proposed for the control of the thermal component of any discharge from such source will require effluent limitations more stringent than necessary to assure the protection and propagation of a balanced, indigenous population of shellfish, fish and wildlife in and on the body of water into which the discharge is to be made, the Administrator (or, if appropriate, the State) may impose an effluent limitation under such sections on such plant, with respect to the thermal component of such discharge (taking into account the interaction of such thermal component with other pollutants), that will assure the protection and propagation of a balanced indigenous population of shellfish, fish and wildlife in and on that body of water.

Criteria and standards for the determination of alternative effluent limitations

Thermal discharge effluent limitations or standards established in permits may be less stringent than those required by applicable standards and limitations if the discharger demonstrates to the satisfaction of the IDEM that such effluent limitations are more stringent than necessary to assure the protection and propagation of a balanced, indigenous community of shellfish, fish and wildlife in and on the body of water into which the discharge is made. This demonstration must show that the alternative effluent limitation desired by the discharger, considering the cumulative impact of its thermal discharge together with all other significant impacts on the species affected,

will assure the protection and propagation of a balanced indigenous community of shellfish, fish and wildlife in and on the body of water into which the discharge is to be made.

In determining whether or not the protection and propagation of the affected species will be assured, the IDEM may consider any information contained or referenced in any applicable thermal water quality criteria and thermal water quality information published by the Administrator under section 304(a) of the Act, or any other information he deems relevant.

St. Joseph Energy Center's 316(a) Demonstration and ATEL Request Summary

The St. Joseph Energy Center submitted a "Request for Alternative Thermal Effluent Limits" for a proposed 1,345 megawatt (MW) combined cycle gas turbine power plant to be located just east of New Carlisle in St. Joseph County. This will be a natural gas fueled facility structured as two 670+ MW power blocks. Construction is expected to be in two phases. Once on line, treated groundwater will be used as the coolant in cooling towers. After serving as a coolant, the portion of this cooling water that does not evaporate will drain, becoming "blowdown." This blowdown, as well as blowdown from the specialized water treatment units will be discharged to the Niespodziany Ditch. Niespodziany Ditch forms the western and southern border of the project's property. When both phases of the construction are completed and the plant fully operational, the expected discharge will be up to 4,112 gallons per minute or 5.9 million gallons per day (MGD).

Niespodziany Ditch, along the property border and discharge point of the facility is a first order stream. It has a straight morphology collecting and transporting agricultural and storm water runoff. No other specific discharges to the ditch are known to exist. Just downstream of the property (south of Edison Rd.) a tributary connects to Niespodziany Ditch. In the original ATEL request, the SJEC referred to this as Laskowski Ditch. The SJEC has provided a correction, explaining that Laskowski Ditch is actually located to the east of Niespodziany and does not connect to it. The connecting ditch from the west and just downstream of Edison Rd. is called Hooten Ditch. Niespodziany Ditch flows south for approximately 7+ miles, gathering discharge from a few other artificial agricultural drainage ditches, eventually having confluence with the upper Kankakee River.

It has been stated that Niespodziany Ditch, at least in the reach of the project, is an ephemeral stream with very limited habitat to support an aquatic community. On May 29, 2013 IDEM visited the ditch at the south end of the project property (Edison Rd.) and two other locations further downstream. After performing some rough measurements IDEM found the flow of the stream to be at about 1.7 cubic feet per second (cfs) or about 1.1 MGD on that day. IDEM observed fish and even captured a young-of-the-year grass pickerel (*Esox americanus*) at this location. Although not at summer low flow, the flow of the stream was gentle and clarity good. The average stream depth was about 0.15 meters. This observation leads IDEM to believe that the ditch may be more perennial at this point in the ditch than previously thought.

Species Recruitment

A cursory assessment of the habitat potential in Niespodziany Ditch revealed varieties of small refugia or in-stream cover including overhanging vegetation, shallow, pools, logs and woody debris, submerged aquatic macrophytes, and abundant bank-side vegetation. Although not deep, the depths observed were typical of first order streams. Although channel morphology is poor in this stream and riparian zones very narrow there is a variety of habitat amenable to pioneer species typical of first and second order streams. However, recruitment, even in the absence of a temperature barrier, may be problematic. St. Joseph Energy Center estimates peak discharge will eventually be 5.9 MGD. This will essentially increase the flow of the ditch by 3.5 times. Although it appears that the depth and width of the ditch is such that it can handle this volume, Niespodziany ditch will be in a high water condition/state year round. With this increased flow and therefore velocity, stability of the stream channel and biological recruitment will be inhibited. The increased volume as well as elevated water temperature from the discharge will have some affect on the bank-side vegetation as well. Also because the entire flow and temperature of the ditch will now be governed by the discharge, this will exclude viable zones of passage as well as create thermal barriers to recruitment from side ditches, tributaries and from the Kankakee River.

UILT

SJEC has proposed alternative effluent temperature limitations for all months except June, July, August, and September (32.2 °C). SJEC has proposed a daily maximum temperature limit (expressed as a 24-hour average) coupled with a weekly average temperature limit for each calendar month based on projected cooling tower performance. The daily maximum temperature proposal is based on the upper incipient lethal temperature (UILT) for a 7-day exposure for creek chub (*Semotilus atromaculatus*). The UILT is an estimate of acute (short-term) exposure maximum temperature relative to a previous acclimation temperature. It is the temperature at which 50% of the test organisms die within a 1- or 7-day exposure period, given a previous acclimation to a constant lower temperature that is within the zone of tolerance of the organism. In Niespodziany Ditch there will essentially be no zones of passage or in-channel refugia from elevated temperatures for fish. Generally the preferred UILT to select would be the median value from studies rather than the highest from any one study. In addition, the U.S. EPA recommends a Margin of Safety (MOS) of 2 °C below the Ultimate Upper Incipient Lethal Temperature (UUILT). The State of Colorado has recommended and implemented a formula for developing an MOS based on the difference between the UILT and an optimum temperature (OT) or preferred temperature (PT). Because differences in UILT and OT can vary among species the hard and fast 2 °C MOS is not always appropriate. A MOS is subtracted from the species-specific lethal values to take the acute criterion from a lethal level to a sub-lethal level.

MOS is equal to 1/5 the distance between the median UILT/UUILT and the Upper Optimum.

$$0.20 * (\text{Median UILT/UUILT} - \text{Upper Optimum}) = \text{MOS}$$

SJEC listed an UILT of 32.3 °C (90.1 °F). This is a critical maximum temperature from one of three studies listed by Wismer and Christie (1987). Utilizing the preferred maximum

temperature of 22 °C (71.6 °F) as a surrogate for the OT, the MOS corrected UILT is 30.2 °C (86.4 °F).

The range of critical maximum temperatures listed is 30.3-32.3 °C with a mean of 31.4 °C (88.5 °F). The calculated MOS corrected maximum temperature (utilizing a preferred temp of 22 °C (71.6 °F) as a surrogate for the OT) for a daily maximum temperature is 29.5 °C (85.1 °F).

New Mexico Environmental Department lists a median UILT of 30.8 °C (87.4 °F) for creek chub.

Yoder recently listed the UILT for creek chub at 33.7 °C (92.7 °F) with an optimal temperature of 28.1 °C (82.6 °F). (ORSANCO fish temperature criteria re-evaluation, 2006). The MOS corrected UILT for a daily maximum temperature is 32.6 °C (90.7 °F).

The average MOS corrected daily maximum temperature from the four above scenarios for protection of creek chub from acute maximum temperature is 30.8 °C (87.4 °F).

A review of spotfin shiner (*Cyprinella spiloptera*): UILT 30.7 °C (87.3 °F) for juveniles and PT 25 °C (77.0 °F). MOS corrected UILT for a daily maximum temperature is 29.6 °C (85.3 °F). Protection of juvenile spotfin shiner will be protective for all other listed species.

MWAT

SJEC has also proposed a mean weekly average temperature limit based on the maximum weekly average temperature (for the most thermally sensitive fishy (creek chub) with 100% survival of 27 °C (80.6 °F). However at issue are spawning, reproduction and early life stage considerations during critical months. The temperature variance proposed has the ditch essentially at a constant temperature year round. Seasonality is an essential element to aquatic life cycles and histories in Midwestern streams and rivers.

Sensitive life-stages (e.g., eggs and fry) and critical activities (e.g., migrations, spawning, feeding) related to reproduction need to be considered when developing temperature limits. The temperatures during spawning seasons (March through June) must be protective of the offspring (i.e., eggs, fry, early life stages). As stated above SJEC is proposing alternate temperature limits for all months except June, July, and August. SJEC needs to ensure that normal seasonal temperature patterns are maintained so that winter temperatures will be substantially cooler than summer temperatures. IDEM believes that the temperature variance that SJEC has proposed does not allow for this. A lowering from the summer values sets the temperature below the threshold that triggers spawning in warm-water fish. This should ensure that fish are not being induced to spawn in the winter by anthropogenic warming, when food is scarce and/or the appropriate habitat may not be available. It also ensures that the life cycles of the benthic dwelling invertebrates, which are a substantial part of the food base for many first and second order stream inhabiting fish, as well as aquatic life stages of amphibians, are also not disrupted. Therefore maximum daily temperature of 32.3 °C (90.1 °F) and a weekly mean of 27 °C (80.6 °F) during the winter months are not conducive to a well balanced and reproducing aquatic community. These high winter time water temperatures will also create extreme thermal barriers

to winter time migration recruitment when the few tributaries to Niespodziany Ditch could be as much as 25 °C colder than Niespodziany Ditch.

SJEC Table 3 of the ATEL request lists SJEC blowdown projected weekly temperatures for January as 18.4 °C (65.1 °F), February 17.6 °C (63.6 °F), March 25.2 °C (77.3 °F), and December 18.1 °C (64.6 °F). These projected temperatures provide for seasonality and will minimize extreme temperature barriers and gradients during the winter months. These temperatures will be more amenable to successful spawning by more sensitive pioneering species such as white sucker.

Conclusion

IDEM proposes that with the exception of June through September, the daily maximum temperature be limited to 29.6 °C (85.3 °F) based on protection of juvenile spotfin shiner, and again with the exception of June through September, the maximum weekly average temperature be limited to 27 °C (80.6 °F) for the months of April, May, October and November based on protection of adult creek chub. The temperature limitations proposed for June through September are the Water Quality Based Effluent Limitations. The proposed temperature limitations should assure the protection and propagation of a balanced indigenous community of shellfish, fish and wildlife in and on the body of water into which the discharge is to be made, and protect against mortality of important species if the elevated plume temperature is suddenly dropped to the ambient temperature. For the winter months of December through March, IDEM suggests that the alternate daily maximum limit and the maximum weekly average temperature be no more than the projected daily maximum and projected weekly average temperatures as listed for each of these respective months in SJEC Table 3, plus a 2 °C margin of safety to allow for minor operational variability and seasonality. The temperature needs to maintain a normal pattern of diel and seasonal fluctuations and spatial diversity with no abrupt changes and shall have no increase in temperature of magnitude, rate, and duration deleterious to aquatic life. At the expiration of the permit, the SJEC should be prepared to support the continuation of the variance with studies based on the discharger's actual operation experience.

WQBEL vs. Proposed ATEL

Water Quality Based Effluent Limitations Table
(Applicable in the absence of an approved ATEL)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
°F	50	50	60	70	80	90	90	90	90	78	70	57
°C	10	10	15.6	21.1	26.7	32.2	32.2	32.2	32.2	25.5	21.1	14

Proposed ATEL Table: Daily Maximums

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
°F	77.5	73.6	82.6	85.3	85.3	93	93	93	93	85.3	85.3	75.4
°C	25.3	23.1	28.1	29.6	29.6	32.2	32.2	32.2	32.2	29.6	29.6	24.1

Proposed ATEL Table: Maximum Weekly Averages

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
°F	68.7	67.3	80.6	80.6	80.6	90	90	90	90	80.6	80.6	68.2
°C	20.4	19.6	27.0	27.0	27.0	32.2	32.2	32.2	32.2	27.0	27.0	20.1

For the months of June through September, IDEM has placed a Daily Maximum of 93 °F and a Maximum Weekly Average of 90 °F in the permit. This is to meet the intent of 327 IAC 2-1-6(b)(4)(D); which states that water temperatures shall not exceed the maximum limits in the following table during more than one percent (1%) of the hours in the twelve (12) month period ending with any month.

Monitoring and reporting of the discharge temperature is to occur on a continuous basis and measurements shall be recorded at a frequency of once per hour. The highest single recorded measurement for each day shall be reported on the state monthly monitoring report and on the federal discharge monitoring report as the maximum daily temperature of that day. The highest calculated weekly average shall be reported on the state monthly monitoring report and on the federal discharge monitoring report as the maximum weekly average.

In addition, for the next permit renewal the SJEC will be required to supplement the initial demonstration with additional information regarding the attractive nature of the thermal discharge to aquatic life. This supplement should focus on any potential impacts to growth and reproduction that may occur if aquatic life selectively stays in the warmer effluent rather than moving to cooler ambient temperature waters.

6.4.2 Polychlorinated Biphenyl Compounds (PCB)

There shall be no discharge of polychlorinated biphenyl compounds such as those commonly used for transformer fluid. In order to determine compliance with the PCB prohibition, the permittee shall provide PCB data for Outfall 001 within six (6) months after first discharge.

<u>Pollutant</u>	<u>Test Method</u>	<u>LOD</u>	<u>LOQ</u>
PCBs*	EPA 608	0.1 ug/L	0.3 ug/L

*PCB 1242, 1254, 1221, 1232, 1248, 1260, 1016

6.4.3 126 Priority Pollutants

The 126 priority pollutants (Appendix A) contained in chemicals added for cooling tower maintenance, except Total Chromium and Zinc, shall not be discharged in detectable amounts. Instead of the monitoring in 40 CFR 122.11(b), compliance with the limitations for the 126 priority pollutants may be determined by engineering calculations which demonstrate that the regulated pollutants are not detectable in the final discharge by the analytical methods in 40 CFR part 136. Monitoring results or engineering calculations must be submitted to IDEM with six (6) months after first discharge and with every permit renewal application thereafter.

6.5 Spill Response and Reporting Requirement

Reporting requirements associated with the Spill Reporting, Containment, and Response requirements of 327 IAC 2-6.1 are included in Part II.B.2.(d), Part II.B.3.(c), and Part II.C.3. of the NPDES permit. Spills from the permitted facility meeting the definition of a spill under 327 IAC 2-6.1-4(15), the applicability requirements of 327 IAC 2-6.1-1, and the Reportable Spills requirements of 327 IAC 2-6.1-5 (other than those meeting an exclusion under 327 IAC 2-6.1-3 or the criteria outlined below) are subject to the Reporting Responsibilities of 327 IAC 2-6.1-7.

It should be noted that the reporting requirements of 327 IAC 2-6.1 do not apply to those discharges or exceedances that are under the jurisdiction of an applicable permit when the substance in question is covered by the permit and death or acute injury or illness to animals or humans does not occur. In order for a discharge or exceedance to be under the jurisdiction of this NPDES permit, the substance in question (a) must have been discharged in the normal course of operation from an outfall listed in this permit, and (b) must have been discharged from an outfall for which the permittee has authorization to discharge that substance.

6.6 Permit Processing/Public Comment

Pursuant to IC 13-15-5-1, IDEM will publish a general notice in the newspaper with the largest general circulation within the above county. A 30-day comment period is available in order to solicit input from interested parties, including the general public. Comments concerning the draft permit should be submitted in accordance with the procedure outlined in the enclosed public notice form.

7.0 POST PUBLIC NOTICE ADDENDUM: OCTOBER 2013

The St. Joseph Energy Center (SJEC) submitted an Antidegradation Demonstration under the provisions of 327 IAC 2-1.3-5 on April 12, 2013. IDEM determined the antidegradation application to be complete and provided public notice of the receipt of the Antidegradation Demonstration in accordance with Rule 327 IAC 5-2-11.2 in order to solicit public comment. The public notice was published in the South Bend Tribune and was open from April 26, 2013 through May 27, 2013. IDEM did not receive requests for a public meeting by the requisite number of people living or working in the watershed or within 15 miles of the proposed loading. A review of the comments received did not result in IDEM deeming a meeting appropriate. However, all comments and questions received prompted IDEM to focus on improving communication within the fact sheet. The comments submitted by each party pertaining to the Public Notice of the complete Antidegradation Demonstration, and this Office's corresponding responses are summarized below.

Comments 1-7 are from the St. Joseph County Health Department.

Comment 8 is from M.A. Swope, New Carlisle, IN.

Comment 9 is from Brian Bailey & Karen Bailey, Ryan & Amber Bailey, and Joseph & Brandi Zolvinski, North Liberty, IN and Michigan City, IN.

Comment 10 is from John R. McNamara P.E., L.S., St. Joseph County Surveyor

Comment 11 is from John Daly, New Carlisle, IN.

Comment 1: The ADD states that the applicant is unsure of the chemicals that will be used to treat cooling water at this early stage of project planning. We recommend that the ADD be updated when the design of the project has been completed and the applicant knows what chemicals will be used to treat the groundwater withdrawn and to treat the cooling water prior to discharge.

Response 1: The SJEC is not unsure of the chemicals that will be used to treat cooling water at this stage of project planning. The list of proposed water treatment additives was submitted to IDEM as Table WTA-1 of the Jan 29, 2013 SJEC NPDES Permit Application (separate cover from the ADD). The information given in this table remains current and applicable.

Comment 2: The ADD states that the applicant is unsure what chemicals will be used to treat the groundwater and what the dosage will be? This needs to be resolved to determine the estimated concentrations of the treatment chemicals in the Niespodziany Ditch and Kankakee River and the impacts to the biotic community.

Response 2: A description of groundwater treatment process is given in the Jan 29, 2013 SJEC NPDES Permit Application, which remains current and applicable. Groundwater supply (as shown in Attachment 5 of the ADD) will be subject to treatment using greensand filtration. No chemicals will be used for groundwater treatment that will be present in the discharge.

Comment 3: Based on the loading factors provided in the ADD of 450,410 lbs of TSS, 34,310 lbs of Chromium and 540,565 lbs of Zinc will be discharged to the Niespodziany Ditch each year. It appears that a system to remove or reduce the amounts of these regulated pollutants prior to discharge is necessary? What impacts will these contaminants have on the biotic community of Niespodziany Ditch and the Kankakee River?

Response 3: There is an error in the projected effluent loadings for chromium and zinc. The units given for chromium concentration (<1.9) and zinc concentration (30) on page 3 of the ADD should be ug/L, not mg/L. Therefore the correct loadings for chromium are <0.094 lb/day (34.31 lb/yr) and for zinc are 1.481 lb/day (540.565 lb/yr). TSS concentrations and loadings given on page 3 are correct. Nevertheless, a system to remove or reduce amounts of TSS, Cr, and Zn is not necessary because these parameters meet applicable technology based effluent limits (i.e., New Source Performance Standards –NSPS) and/or water quality based effluent limits (i.e., water quality criteria) as shown in the Table below. As stated on page 2 of the ADD, SJEC operations do not add zinc or chromium; instead the presence of these parameters is due to cycling of cooling water, which has been minimized to assure no impacts to Niespodziany Ditch and the Kankakee River.

St. Joseph Energy Center - Comparison of Effluent to Direct Discharge Limits
Discharge to Surface Water

Parameter	Units	Design - Effluent Cooling Tower Blowdown	Groundwater ²	Direct Discharge Technology-based Limits: 40 CFR 423.15 (NSPS) Federal ELGs				Effluent < Limit Yes is Good	Comments on Comparison of Effluent to Limits
				Daily Max	Mon Avg	Daily Max	Mon Avg		
Flow	gpm	4,112							
TRC ¹	mg/L	<0.02		0.2		0.009	0.018	Y	SJEC will dechlorinate discharge TBELs have to be achieved through engineering/operations TBELs have to be achieved through engineering/operations Not detected in groundwater, no sources Present in groundwater
TSS	mg/L	25	1	100	30			Y	
Oil & Grease	mg/L			20	15			Y	
Chromium	ug/L	<1.88	<0.74	200		448	223	Y	
Zinc	ug/L	30	12	1,000		232	115	Y	

Notes:

1. The Method Detection Limit (MDL) for TRC is 0.02 mg/L. The acute and chronic criteria (0.019 and 0.011 mg/L, respectively) are lower than the MDL.

2. Groundwater data from 24-Feb-12 and 15-Nov-12 sample events (Test America analysis, EPA Method 200.8) and 31-Jan-12 sample event (UG Water analysis)

Mon Avg: Monthly Average Limit

TBELs: Technology-based Effluent Limits

NSPS: New Source Performance Standards

ELGs: Effluent Limit Guidelines

Comment 4: Many different types of oxidizing and non-oxidizing biocides are traditionally used in cooling towers to prevent bacterial, algal, and fungal growth. Will there be any pretreatment to remove these chemicals prior to discharge? What will the concentration of these contaminants be in the Niespodziany Ditch and Kankakee River and what impacts will this have on the biotic communities?

Response 4: Two oxidizing biocides are given on Table WTA-1 of the Jan 29, 2013 SJEC NPDES Permit Application, Hypochlorite and ControlBrom CB70. There are no planned non-oxidizing biocides. Therefore, only chlorination is applied for disinfection. The cooling tower blowdown will be dechlorinated prior to discharge with sodium bisulfate to destroy Total Residual Oxidants, including bromine and chlorine. Total residual chlorine will not be detectable in the discharge (see ADD page 2 and the attached table) and will not impact/increase ambient ditch concentrations.

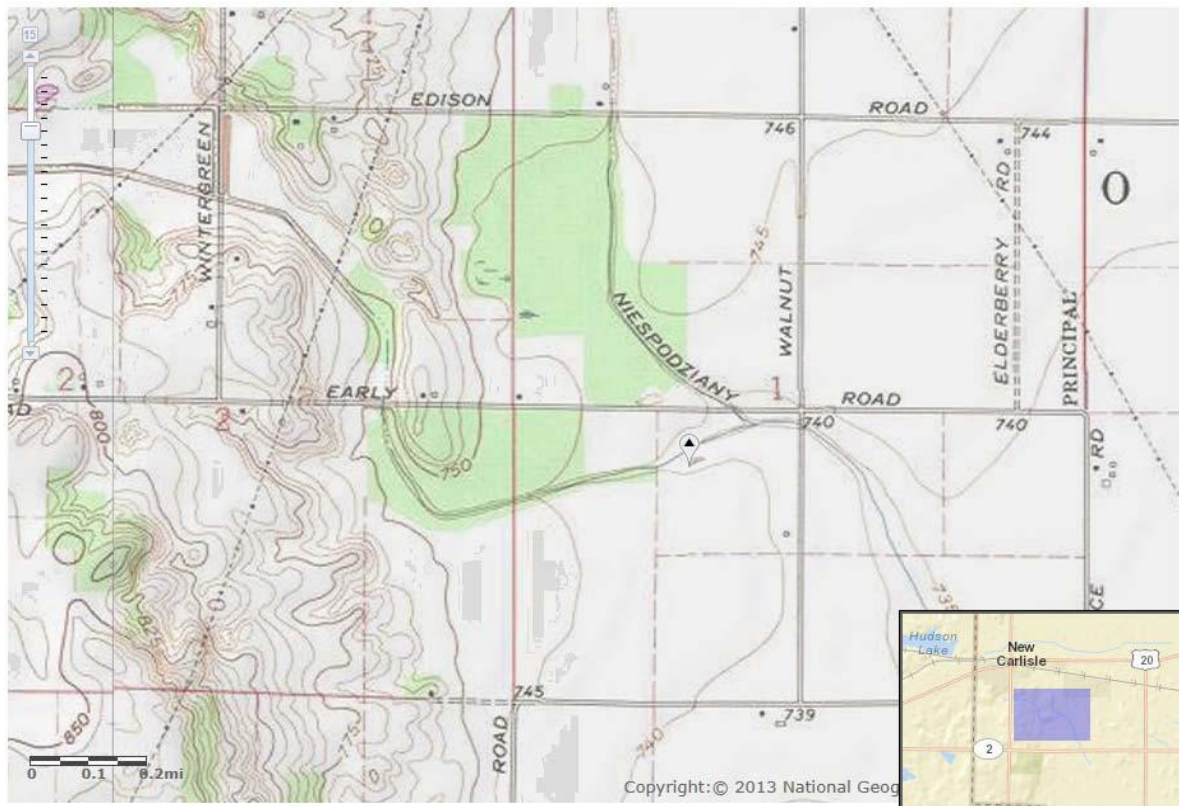
Comment 5: The discharge of 4,112 gal/min or 550.46 ft³/min of cooling tower blowdown will significantly increase the volume and velocity of the stream flow resulting in accelerated stream channel erosion and bank erosion. This channel instability would likely result in increased sedimentation, flooding, land loss, and habitat loss. What measures will be taken to minimize erosion, sedimentation, flooding, and other adverse effects caused by the increased flow in the Niespodziany Ditch?

Response 5: These issues have been addressed in the Nov 29, 2012 application submitted to the St. Joseph County Engineering Department to connect the SJEC cooling tower blowdown discharge to Niespodziany Ditch. This application was approved by the Office of County Surveyor April 26, 2013. The velocity will not be "significantly" increased due to the addition of 6 mgd and channel scour velocity will not be exceeded at any point in the channel during dry weather flow. For storm flows, the 6 mgd only contributes a small fraction (<5%) of the total flow in the channel up to State Road 2, so any scouring that occurs during storms would not be significantly increased by the 6 mgd flow. Specific erosion protection measures include installation of two 24" pipes (only 1 is needed, so redundancy is present) – see Application Appendices 3 & 4. Also, rip rap is utilized at the

entrance to the ditch. The pipes were sized to keep velocity below 4 ft/s (scour velocity). Because the ditch widens significantly after discharge, the resulting velocity will be below the scour velocity.

Comment 6: The ADD references biological and chemical data generated by IDEM on the Niespodziany Ditch watershed, specifically a study conducted by IDEM on the Laskowski Ditch. The ADD states that the Laskowski Ditch is a tributary to the Niespodziany Ditch; however, the ditch shown in Attachment 3 is actually the Hooten Ditch and not the Laskowski Ditch. The Laskowski Ditch does not intersect with Niespodziany Ditch and is located in a separate drainage area to the east. Is the chemical and biological data referenced in Attachment 4 acceptable for documenting the biological and chemical conditions of the receiving waters?

Response 6: The comment is correct as data provided for what was called “Laskowski Ditch” is representative of what is actually named “Hooten Ditch”. Based on information provided by IDEM, the waterbody name was “tributary to Niespodziany Ditch” and the HUC name was called “Laskowski Ditch-Kankakee River”. After further review, SJEC has confirmed the correct name of the sample location is indeed Hooten Ditch. In any case, data collected from such ditch sample location, IDEM location ID,UMK010-0029 at latitude 41.68556408 and longitude -86.48083052 (see below), is representative of the Hooten Ditch and the conclusions presented in the ADD remain unchanged.



Comment 7: Currently there are ten significant water-withdraw facilities within a 1-mile radius of the project site with a combined withdraw capability of 25.48 million gal/day. The added withdraw of 15.14 million gal/day for this project is likely to have an impact on the twenty-one residential wells within a 1-mile radius of the project site. Is the applicant willing to commit to replacing any residential wells that are adversely impacted by the significant drawdown?

Response 7: The Project is having ongoing discussions with the County regarding withdrawal. Given the prolific nature of the aquifer it is believed that the Project's potential maximum withdrawal will not affect nearby wells. As discussions progress the Project will provide additional information and address any concerns.

Comment 8: Request for urgent Public Meeting regarding the application of St. Joseph Energy Center's desire to discharge wastewater into the Niespodziany drainage ditch within the Kankakee River Watershed in the New Carlisle, IN area. An explanation is requested as to why such a plan to pollute our water would ever be considered anywhere near where citizens of our county live and work.

Response 8: IDEM did not receive requests for a public meeting by the requisite number of people living or working in the watershed or within 15 miles of the proposed loading. A review of the comments received did not result in IDEM deeming a meeting appropriate. However, all comments and questions received prompted IDEM to focus on improving communication within the fact sheet.

This permit was written in accordance with the Clean Water Act and Indiana Administrative Codes in order to protect the receiving water body. The permit establishes limitations on TSS, Oil & Grease, Total Residual Chlorine, Zinc, Total Chromium, and Temperature to discourage and prevent discharge of those parameters in concentrations and loadings higher than water quality criterion allows. Section 316(a) of the Clean Water Act (CWA) allows temperature limitations to be established in permits that are less stringent than those required by water quality standards if the discharger demonstrates to the satisfaction of the regulator (in this case IDEM) that the water quality standards are more stringent than necessary to assure the protection and propagation of a balanced, indigenous community.

Comment 9: We the undersigned object to St. Joseph County Energy Center, 54801 Walnut Road, New Carlisle, IN 46552, of dumping their wastewater into the Niespodziany Ditch. This ditch runs thru our property. We irrigate our crops, water our animals, fish and swim in this stream.

Response 9: Please refer to Response 8.

Comment 10: The St. Joseph Drainage Board at its May 6, 2013 meeting passed a motion requesting that IDEM conduct a Public Meeting regarding the St. Joseph Energy Center (SJEC) permit No. IN0064122. There was concern voiced by farmers

downstream of the SJEC plant at the May 6th meeting about the chromium, zinc, and chlorine that will be discharged into the Niespodziany Ditch by the SJEC. Some of the farmers irrigate from the ditch and there are some livestock that drink from the ditch. Concern was voiced about their safety and the cumulative buildup of these chemicals.

Response 10: IDEM did not receive requests for a public meeting by the requisite number of people living or working in the watershed or within 15 miles of the proposed loading. A review of the comments received did not result in IDEM deeming a meeting appropriate. However, all comments and questions received prompted IDEM to focus on improving communication within the fact sheet.

The SJEC is implementing engineering controls and flow management practices to assure that TRC will not be detectable in the discharge. The effluent will be dechlorinated prior to discharge.

SJEC operations will not add incremental chromium or zinc to the water cycled through the facility, therefore the projected effluent quality for chromium and zinc is based on the levels measured in the groundwater that will supply the facility. However, the cycling of cooling water through the cooling towers will increase the concentration of chromium and zinc in the effluent relative to the groundwater supplying the facility. In order to manage these concentrations the SJEC has engineered the Project to minimize the number of cooling tower cycles.

This permit was written in accordance with the Clean Water Act and Indiana Administrative Codes in order to protect the receiving water body. The permit establishes limitations on TSS, Oil & Grease, Total Residual Chlorine, Zinc, Total Chromium, and Temperature to discourage and prevent discharge of those parameters in concentrations and loadings higher than water quality criterion allows. Section 316(a) of the Clean Water Act (CWA) allows temperature limitations to be established in permits that are less stringent than those required by water quality standards if the discharger demonstrates to the satisfaction of the regulator (in this case IDEM) that the water quality standards are more stringent than necessary to assure the protection and propagation of a balanced, indigenous community.

Comment 11: I would like to request that a Public Meeting be held here in our vicinity regarding the Saint Joseph County Energy Center's ADD, recently posted in the South Bend Tribune. The verbiage in that "Antidegradation Demonstration" blatantly states that their plan is to release 5.9 million gallons of industrial wastewater into the drainage for the Kankakee Watershed area, every day, and this –and I quote: "...will result in a significant lowering of water quality in the Niespodziany Ditch which is within the Kankakee River Watershed. As a citizen and a resident of New Carlisle in St. Joe County, when I see an industrial proposal that specifically states that a significant lowering of water quality is to be expected...releasing millions of gallons of wastewater per day...well, I ask that IDEM demonstrate to

me how this equates to anything remotely resembling “antidegradation”. Not to forget, that our aquifer...especially in that particular area...is unprotected”...more porous than other adjacent ground...and yet, we continue to surround that water resource with polluting industry. The likelihood of environmental disaster here? This is clearly a case of Not If-But When.

Response 11: Please refer to Response 10.

The draft NPDES permit for the St. Joseph Energy Center was made available for public comment from August 28, 2013 through September 30, 2013 as part of Public Notice No.2013-8I-RD. During this comment period, the letters and emails pertaining to the draft permit were received. The comments submitted by each party, and this Office’s corresponding responses are summarized below: Any changes to the permit and/or fact sheet are so noted below.

Comment 12 was received via email on 8/28/13, from Donald Myers, Chief/Uku, Chickamauga Indian Confederacy.

Comments 13 and 14 were received via email on 8/28/13 and letter dated 8/28/13 from John Daly, New Carlisle, IN.

Comment 14 was received via email on 9/10/13, from Mrs. Mary Countryman, New Carlisle, IN, Comment 15 was received via letter dated 9/27/13, from St. Joseph Energy Center, LLC.

Comment 12: In response to a posted public notice in the South Bend Tribune from this date our tribe herein requests a public hearing in St. Joseph County regarding this issue. It is becoming more and more important that we protect our water tables and underground rivers from contamination and we, as well as another group in this area that we have the absolute right to make a statement and to receive the real information regarding this matter.

Response 12: Thank you for your interest in this matter. This permit was written in accordance with the Clean Water Act and Indiana Administrative Codes in order to protect the receiving water body. The permit establishes limitations on TSS, Oil & Grease, Total Residual Chlorine, Zinc, Total Chromium, and Temperature to discourage and prevent discharge of those parameters in concentrations and loadings higher than water quality criterion allows. Section 316(a) of the Clean Water Act (CWA) allows temperature limitations to be established in permits that are less stringent than those required by water quality standards if the discharger demonstrates to the satisfaction of the regulator (in this case IDEM) that the water quality standards are more stringent than necessary to assure the protection and propagation of a balanced, indigenous community.

Comment 13: I see from the Public Notice IDEM had published in this morning’s edition of the South Bend Tribune (8/28/2013) that the St. Joseph Energy Center’s permit applications are flying fast and furious down your way. This latest has to do with the temperature at which the estimated 5 million gallons of wastewater per day will be released into the local watershed area via the Niespodziany Ditch up here in Western St. Joseph County. From a previous public notice you published in the

SBTrib... concerning St. Joseph Energy Center's expected negative impacts on local water quality - a possibility specifically acknowledged in the verbiage of the public notice, by the way - I now see that what we don't do damage to just by the sheer volume of these daily releases and the toxins they will contain...not to worry... we'll get to any surviving denizens of the local biosphere by 'parboiling' them. Isn't that special? Really puzzling, though, Ms. Gardner, is the after-the-fact character of these public notices in general. Reading these applications through reveals IDEM's stated intention to approve these permits...long before the public is given even a remote possibility of having their views heard on these matters. Does the public's input really count for so little in this process? These Public Notices are, evidently, strictly legalistic formalities...with IDEM's decisions arrived at before the public even knows what's afoot down there in Indianapolis. Truly, this is a Civics Lesson we need to learn here in Western St. Joe County.

Response 13: IDEM appreciates your comments and interest in this matter. For clarification, the first public notice was of a complete Antidegradation Demonstration, not a draft permit. In accordance with 327 IAC 2-1.3-6(b), IDEM provided notice and requested comment in accordance with 327 IAC 5-2-11.2. IDEM did not receive requests for a public meeting by the requisite number of people living or working in the watershed or within 15 miles of the proposed loading. A review of the comments received did not result in IDEM deeming a meeting appropriate. However, all comments and questions received prompted IDEM to focus on improving communication within the fact sheet.

IDEM's Office of Water Quality (OWQ) can't address permits considered, reviewed, or issued by the Office of Air Quality. However, IDEM's OWQ followed all regulations regarding public notice of all matters related to this permit. All decisions made by the OWQ in this matter were made based on all available information, including public input.

The St. Joseph County Drainage Board approved a discharge rate of 9 cfs (~6 MGD) to the Niespodziany Ditch, subject to two conditions; 1) the permittee provides the funding necessary to replace the two private culverts as identified as based on the recommendations cited in the hydraulic analysis report prepared by DLZ Indiana LLC, and 2) the permittee provides the funding necessary to clean or dredge the Niespodziany Ditch from SR 2 to the north property line of the proposed Energy Plant site (Norfolk Southern Railroad). IDEM believes that given the local drainage board's approval, the volume shouldn't be detrimental.

Additionally, temperature limitations established in the permit were selected based on protection of the most sensitive representative species known to be in the affected area; the juvenile spotfin shiner. Any temperatures not based on protecting this species of fish were established in accordance with water quality based effluent limitations (in other words, by Indiana Administrative Code).

Compliance and enforcement actions will be taken as needed based on violations of NPDES permit limitations and requirements.

Comment 14: Once again, I am writing the Indiana Department of Environmental Management to voice concerns I have....and share with many citizens living in close proximity...with the operation in the above cited permit application for the St. Joseph Energy Center's proposed power plant project. My mind drifts back....

First an application was made to IDEM to allow the discharge of better-than 5 million gallons of wastewater per day into the Niespodziany Ditch...and eventually on into the further reaches of the Kankakee Watershed area. My letter regarding that permit app and a request for a public hearing to discuss the proposed discharge....noted in the language of the Public Notice itself as likely to lower water quality in the area....never received an acknowledgment nor update as to IDEM's action on that particular permit application...though my understanding was that The Rules called for a response from IDEM to my letter.

Second, another permit application from St. Joseph Energy Center...this time for an Acid-Rain-related permit...and my request for a public hearing about the dynamic is dismissed out-of-hand...with an "explanation" from IDEM that I hadn't made my case in my letter as far as specific objections to that acid rain allowance and my request for IDEM to come up here to St. Joe County and explain to the people who will live close by this "approved polluter" just what we can expect life close up to this thing to feel like? Refused once again...as far as I know.

So...Once again..I am writing to object strenuously to IDEM's approving the permit application now under their consideration, regarding the temperature that 5million-plus gallons of wastewater will be when they're dumped into the local drainage system....every day. My understanding is that, not only will there be pollutant sin the discharge waters that can negatively impact water quality...but the high temperatures of that wastewater at its release will pose a hazard to the critters and other denizens that go to make up the tapestry of life that exists out there where St. Joseph Energy Center intends to set up shop.

IDEM is charged with the duty of ensuring that proposals such as the St. Joseph Energy Center's NatGas Power Plant do not pose a hazard to the citizens in the area...nor to the air and water quality in that area as well. After-the-fact response plans are a day late and a dollar short. Break open this egg and that shell stays cracked.

Where is the Emergency Response Plan for this? I am dismayed by the fact that IDEM seems to think that contingency plans need not be presented until after a negative events occurs...at least that's what the Acid rain permit app read like....Will that be IDEM's take on "enforcement" with this dynamic of that proposed plant as well?

IDEM owes it to the citizens of Western St. Joseph County...not just to those looking to set up shop in our midst and start spewing wastes and making money...to come up here and explain themselves and their continued rubber-stamping of environmentally-destructive projects such as this.

I object to both the amount of effluent this plant will spew into our local biosphere...as well as the extremes of temperature that waste will be when it enters the environment. We here in Western Saint Joseph County...the Saint Joseph County Concerned Citizens Group...object most strenuously to this project and its sale of our children's future for short-sighted pie-in-the-sky profits. What do you think? Worth discussing??

Response 14: Please refer to Response 13.

Comment 15: Requesting a Public Hearing; A few of my Concerns/Topics:

1. Amount of water (5.9 Million Gallons Daily) to be removed from the Aquifer; How will this affect the Aquifer/Water table/ surrounding well/pump/household/irrigation systems?
2. Amount of water (5.9 Million Gallons of water per day) to be discharged into the Niespodziany Ditch; How will the ditches handle 5.9 Million gallons every day? With possible heavy springtime rains?
3. Upsetting the natural balance of removing such a large quantity of water in such a short time; will there be flooding such as the flooding problem experienced in South Bend after the New Energy Plant stopped pumping if the proposed plant stops pumping water? Who will pay to correct this problem? Taxpayers? Property owners?
4. What happens if the water temperatures are not in the proposed range? Consequences?
5. What is the history of violations for the St Joseph Energy Center and/or any of its associates?
6. What are the current monthly temperatures of the Niespodziany ditch?
7. How will changing the current ditch water temperature by discharging water from the cooling tower temperatures affect the flora and fauna? Bacteria?
8. What studies have been done in this area to prove there will not be an adverse chain reaction from adding that great amount of water of those temperatures into the ditch?
9. How will discharging 5.9 million gallons of fifty to ninety degree water every day into the ditch impact other connecting ditches/ the Grand Kankakee Watershed Marsh Area?
10. What chemicals and/or residues will be released with the cooling water/What does IDEM consider to be acceptable to be released with the discharge water?

11. How often will the discharge water be tested for chemicals? Who tests it?
12. What specifically will the discharge water be tested for?
13. Will the discharge water be treated before it is released into the ditch? If so, who is in charge of treating it?
14. Will IDEM be working with the EPA or any groups associated with protecting the Kankakee River and the Grand Kankakee Marsh Watershed area to ensure the flow down isn't damaging an area so vital to so many endangered species?
15. What studies have been done or will be taken into consideration concerning the shift in water temperature in the ditch and the impact that will have on causing stress in native species of plants, organisms, etc?
16. How will this temperature change alter the eco system and what effect will it have on the probability of invasive species of plants, and organisms?
17. What studies have been done or will be taken into consideration for the likely decrease of water flow in ditches when invasive plant species are clogging the ditches?
18. If/when invasive plant species clog ditches and slow water flow, who will be responsible for the cost of the ditch cleaning? What method would be used? Chemicals are dangerous as well as costly to the environment. Ditch Cleaning equipment is expensive, and yet another cost to be paid by the landowner.
19. Has IDEM sent a notice to every landowner where the Niespodziany Ditch in the Kankakee Watershed goes through their property? Every landowner should be notified because changes likely to occur to their property.

Response 15: Thank you for your interest in this matter. IDEM appreciates you taking the time to develop specific questions related to the matter at hand. An attempt to answer each of your questions individually follows:

1. Amount of water (5.9 Million Gallons Daily) to be removed from the Aquifer; How will this affect the Aquifer/Water table/ surrounding well/pump/household/irrigation systems?
 - The Indiana DNR regulates high capacity wells to ensure that the aquifer/water table/ surrounding wells will not be negatively impacted by any drawdown from the high capacity well. IDNR verbally indicated to IDEM that they had no concerns related to this facility.
2. Amount of water (5.9 Million Gallons of water per day) to be discharged into the Niespodziany Ditch; How will the ditches handle 5.9 Million gallons every day? With possible heavy springtime rains?
 - The St. Joseph County Drainage Board approved a discharge rate of 9 cfs (~6 MGD) to the Niespodziany Ditch, subject to two conditions; 1) the permittee provides the funding necessary to replace the two private culverts as identified as based on the recommendations cited in the hydraulic analysis report prepared by DLZ Indiana LLC, and 2) the permittee provides the funding necessary to clean or dredge the Niespodziany Ditch from SR 2 to the north

property line of the proposed Energy Plant site (Norfolk Southern Railroad). IDEM believes that given the local drainage board's approval, the volume shouldn't be detrimental.

3. Upsetting the natural balance of removing such a large quantity of water in such a short time; will there be flooding such as the flooding problem experienced in South Bend after the New Energy Plant stopped pumping if the proposed plant stops pumping water? Who will pay to correct this problem? Taxpayers? Property owners?

- The situation experienced in South Bend was due to houses being built after the facility began operation, and the houses were built with basements due to an artificially low water table.

4. What happens if the water temperatures are not in the proposed range? Consequences?

- If the water temperature of the discharge doesn't meet the limits established in the permit, IDEM may pursue compliance and enforcement action against the permittee.

5. What is the history of violations for the St Joseph Energy Center and/or any of its associates?

- IDEM is not aware of the compliance and enforcement history associated with the St. Joseph Energy Center or its associates.

6. What are the current monthly temperatures of the Niespodziany ditch?

- Ambient background temperatures.

7. How will changing the current ditch water temperature by discharging water from the cooling tower temperatures affect the flora and fauna? Bacteria?

- Consideration of potential effects on flora, fauna and other life were considered in the St. Joseph Energy Center's request for alternative thermal effluent limitations. Their evaluation of the local and regional hydrologic setting and aquatic biota with potential to be present in the Ditch indicated no unique habitat, species, or threatened and endangered or otherwise sensitive organisms are present or expected to be present in the ditch. Their evaluation of the aquatic biota expected to occur in the Ditch indicated the fish community to be the most thermally sensitive organism group within the Ditch system. IDEM selected the most sensitive representative important

species potentially present in the Ditch and established temperature limits designed to protect that species.

8. What studies have been done in this area to prove there will not be an adverse chain reaction from adding that great amount of water of those temperatures into the ditch?

- Studies were conducted in this area by the permittee as part of the permit application process and include the antidegradation demonstration and request for alternative thermal effluent limitations. Hydrologic studies were conducted by the permittee as well and submitted to the local drainage board for their approval.

9. How will discharging 5.9 million gallons of fifty to ninety degree water every day into the ditch impact other connecting ditches/ the Grand Kankakee Watershed Marsh Area?

- According to the St. Joseph Energy Center's request for alternative thermal effluent limitations, the immediate and long term influence of the discharge is expected to decrease downstream and be minimal near the confluence with the Kankakee River. Between the Ditch and the Kankakee River, the watershed progressively increases in size. The shift from an ephemeral to a perennial stream will allow movement, migration, and colonization of fish and other aquatic organism groups to all locations within the Ditch system. Ambient cooling dynamics and combining with cooler downstream water will reduce downstream effects. Under perennial flow conditions, species can easily migrate to tributaries or other locations within the Ditch system.

10. What chemicals and/or residues will be released with the cooling water/What does IDEM consider to be acceptable to be released with the discharge water?

- IDEM hasn't approved the use of any water treatment additives at this time. The permittee must request permission from IDEM to use any additive. IDEM reviews each additive for acute and chronic toxicity, as well as the potential to exceed available water quality criteria. If the permittee is proposing to discharge an additive at a level expected to be acutely or chronically toxic, or has the potential to exceed water quality criteria, it will be denied for use.

11. How often will the discharge water be tested for chemicals? Who tests it?

- The permittee is responsible for testing in accordance with the sample type and frequency required in the permit. The frequencies are given in the table below:

Parameter	Minimum Frequency	Type of Sample
Flow	Daily	24 Hr. Total
TSS	1 X Week	Grab
O & G	1 X Week	Grab
TRC	1 X Week	Grab
Temperature	Daily	Grab
Zinc	2 X Month	24 Hr. Composite
Chromium	2 X Month	24 Hr. Composite
126 Priority Pollutants	⁽¹⁾	Report
pH	Daily	Grab

⁽¹⁾ At least once per permit cycle

12. What specifically will the discharge water be tested for?

- Please refer to the Table above.

13. Will the discharge water be treated before it is released into the ditch? If so, who is in charge of treating it?

- The discharge will be dechlorinated prior to entering the Ditch. The permittee is responsible for meeting all effluent limitations.

14. Will IDEM be working with the EPA or any groups associated with protecting the Kankakee River and the Grand Kankakee Marsh Watershed area to ensure the flow down isn't damaging an area so vital to so many endangered species?

- IDEM regularly works with the EPA and watershed protection groups to ensure downstream areas and species are protected. There are no known endangered species downstream of this discharge.

15. What studies have been done or will be taken into consideration concerning the shift in water temperature in the ditch and the impact that will have on causing stress in native species of plants, organisms, etc?

- Studies were conducted in this area by the permittee as part of the permit application process and include the antidegradation demonstration and request for alternative thermal effluent limitations. IDEM may require additional studies in the future to determine whether or not assumptions made in the predicative study were correct. Additionally, IDEM may conduct studies on its own to determine whether or not assumptions made in the predicative study were correct.

16. How will this temperature change alter the eco system and what effect will it have on the probability of invasive species of plants, and organisms?

- According to the St. Joseph Energy Center's request for alternative thermal effluent limitations, no species could be identified as capable of becoming a nuisance species in the Ditch. Organisms capable of becoming nuisance species are not known to exist within the immediate facility discharge location of the Ditch. Reports of organisms that are considered to aesthetically be a nuisance or that may be recognized as a nuisance species and occur in abundance, have not been reported from the Ditch or nearby regional streams and drainage basins.

17. What studies have been done or will be taken into consideration for the likely decrease of water flow in ditches when invasive plant species are clogging the ditches?

- Please refer to the previous comment/response.

18. If/when invasive plant species clog ditches and slow water flow, who will be responsible for the cost of the ditch cleaning? What method would be used? Chemicals are dangerous as well as costly to the environment. Ditch Cleaning equipment is expensive, and yet another cost to be paid by the landowner.

- The St. Joseph County Drainage Board approved a discharge rate of 9 cfs (~6 MGD) to the Niespodziany Ditch, subject to two conditions; 1) the permittee provides the funding necessary to replace the two private culverts as identified as based on the recommendations cited in the hydraulic analysis report prepared by DLZ Indiana LLC, and 2) the permittee provides the funding necessary to clean or dredge the Niespodziany Ditch from SR 2 to the north property line of the proposed Energy Plant site (Norfolk Southern Railroad). IDEM believes that given the local drainage board's approval, the volume shouldn't be detrimental.

19. Has IDEM sent a notice to every landowner where the Niespodziany Ditch in the Kankakee Watershed goes through their property? Every landowner should be notified because changes likely to occur to their property.

- IDEM's OWQ followed all regulations regarding public notice of all matters related to this permit; see 327 IAC 5-3-9. In addition to a notice being published in the local newspaper, copies of the draft were sent to those who commented on the Antidegradation Demonstration, draft documents were made available for review at IDEM, a copy of the draft permit was on file at the local county health department, as well as being posted on IDEM's website. Please refer to Public Notices: www.in.gov/idem/5474.htm.

Comment 16: St. Joseph Energy Center, LLC (SJEC) offers the following comments on the August 28, 2013 Public-Noticed Draft NPDES Permit (IN 0064122). These comments specifically address the Alternative Thermal Effluent Limitations (ATEL) given in Part III.A (page 27 of 28).

BACKGROUND

The draft permit contains daily maximum temperature limitations that were developed for each month as follows:

- December, January, February, and March limits are based on projected operations (from Table 3 of SJEC January 29, 2013 Request for Alternative Thermal Effluent Limits) plus 2°C (or 3.6°F). The additional 2°C above the projected operational daily maximum temperatures was implemented by IDEM because these projected temperatures were calculated as daily averages (i.e., 24-hr averages), not as instantaneous maximum temperatures occurring during a day (i.e., short-term spike). Since the permit defines compliance with the daily maximum ATEL as “the highest single recorded measurement for each day” the 2°C increase is necessary to allow for operational variability (flexibility) while still accounting for seasonality.
- June, July, August, and September limits of 90°F are based on the thermal criteria given in 327 IAC 2. No ATELS for these months have been requested. Consistent with the regulation, these months have been denoted “at no time shall the water temperature at such locations exceed the maximum limits in the tables above by more than three degrees Fahrenheit” (3°F = 1.7°C). Similar to the winter months above, the additional 3°F above the 90°F limitation allows for variability expected during a calendar day. Again, this is necessary given the definition of a daily maximum limit assessed as the highest single recorded measurement.
- April, May, October, and November limits are based on aquatic life protection, specifically the Upper Incipient Lethal Temperature (UILT) for fish. In the SJEC January 29, 2013 Request for Alternative Thermal Effluent Limits, SJEC proposed a UILT of 90.1°F based on 7-day exposure to creek chub. IDEM applied a different methodology for the UILT that incorporates a margin of safety (MOS) correction. IDEM determined a MOS-corrected UILT for spotfin shiner of 85.3°F, and this value was applied as the daily maximum limit for April, May, October, and November.

SJEC has concerns with consistent compliance with the daily maximum limits for April, May, October, and November and offers two permit revision approaches for IDEM consideration.

APPROACH #1 – Allowance for Operational Variability

While SJEC acknowledges the UILT calculations utilized by IDEM for the months of Apr, May, Oct, and Nov (given on the bottom of page 23 of the Fact Sheet as MOS derived from the UILT and Upper Optimum temperature), SJEC contends that this methodology does not allow for the anticipated daily variability from operations as do the remaining months of the year (i.e., 2°C addition in winter and 3°F addition in summer). Therefore, SJEC requests that the daily maximum limits for Apr, May, Oct, and Nov be increased by 3°F to allow for such variability that can occur at any time of the year. This increase is justified by the following:

- The UILT for spotfin shiner is likely based on a typical 7-day exposure duration, not a 1-day exposure. A 7-day exposure period response at temperature “X” would not be expected to be at all equivalent with a 24 hour (or shorter) exposure period response at the same temperature “X”.
- The IDEM UILT has incorporated a margin of safety that represents more of a median value
- The daily maximum limit is defined as the single highest recorded measurement, not the 24-hr average
- The resulting limit for these months ($85.3^{\circ}\text{F} + 3^{\circ}\text{F} = 88.3^{\circ}\text{F}$) is less than the SJEC-requested ATEL of 90.1°F

After modification of the Apr, May, Oct, and Nov daily maximum limit to 88.3°F to allow for operational flexibility (i.e., instantaneous temperature spike), no further changes to Part III.A are necessary. The definition of daily maximum as the single highest recorded measurement can remain in the permit, as this is consistent with other recently issued in NPDES permits.

APPROACH #2 – Daily Maximum Compliance Statistic

If IDEM believes that the 3°F increase for Apr, May, Oct, and Nov daily maximum limits is not justified, then SJEC requests IDEM change the compliance statistic for the daily maximum temperature be a 24-hr (i.e., calendar day) average of the temperature readings recorded hourly. This option is justified because:

1. this statistic is consistent with the definition of daily discharge given in Part I.C.3.b and I.C.3.c.
2. the daily maximum ATELs in the winter (Dec – Mar) were based on projections from SJEC operations utilizing a daily average statistic, and not an instantaneous maximum. As instantaneous short term temperature spikes may occur during normal operations, the compliance limitations must match the derivation basis of the model, that is, the daily maximum limits are determined as 24-hr averages from continuous (hourly) monitoring. While SJEC appreciates IDEM’s concurrence to apply a 2°C increase to this projection to allow for

operational variability, it is still necessary to assess compliance using the same statistic that served as the limit basis.

3. the use of the 24-hour average will be protective of aquatic life as the temperature tolerance data, including the UILT, is based on a standard exposure period of seven-days that greatly exceeds the 24-hour temperature average period.

4. hourly temperature data will still be recorded and reported to IDEM under the terms of the permit. As “real” data indicative of actual discharge temperature become available, this information can support any modification to the operational projections that may be necessary.

If the daily average statistic is utilized, SJEC is not asking for any further revisions to the numerical ATELs given in the daily maximum and weekly average tables. The only necessary revision would be to remove the second sentence of the paragraph following the tables. Again, Part I.C.3 would serve to replace this sentence by providing a definition of daily discharge.

CONCLUSION

In sum, SJEC requests IDEM consider one of the following approaches for ATEL compliance assessment of daily maximum temperature:

Approach #1: Leave the compliance statistic as is (highest single recorded measurement) and increase the daily maximum limits for Apr, May, Oct, and Nov by 3°F (1.7°C).

Approach #2: Change the compliance statistic from hourly to 24-hr average and leave all numerical limits as is.

Response 16: IDEM has proposed temperatures that are either water quality based or are protective of the RIS as identified by IDEM and the permittee; juvenile spotfin shiner (June through September) and adult creek chub (April, May, October and November). The temperature limitations proposed for June through September are the Water Quality Based Effluent Limitations.

The proposed temperature limitations should assure the protection and propagation of a balanced indigenous community of shellfish, fish and wildlife in and on the body of water into which the discharge is to be made, and protect against mortality of important species if the elevated plume temperature is suddenly dropped to the ambient temperature.

For the winter months of December through March, IDEM proposed temperatures that would be no more than the projected daily maximum and projected weekly average temperatures as listed for each of these respective months in the SJEC table provided (Table 3), plus a 2 °C margin of safety to allow for minor operational variability and seasonality.

The temperature needs to maintain a normal pattern of diel and seasonal fluctuations and spatial diversity with no abrupt changes and shall have no increase in temperature of magnitude, rate, and duration deleterious to aquatic life.

Alternative temperature limits should be established based on protection of the RIS, water quality based effluent limits, as well as a reasonable amount of operational variability. If after beginning to operate and discharge, the facility finds that meeting temperature limits is a problem, they should evaluate and exhaust all engineering and treatment options first. After that, the permittee may request a modification to the 316(a) alternative thermal effluent limitations and provide all necessary supporting documentation (Type I or III Demonstration).

To meet the intent of 327 IAC 2-1-6(b)(4)(D), IDEM has changed the daily maximum during the months of June through September to 93 °F while keeping the weekly average at 90 °F.